

#7



SEQUENCE LISTING

<110> Chen, Yiyou
 Day, Anthony G.
 Estell, David A.
 Murray, Christopher G.
 Power, Scott D.
 Schellenberger, Volker

<120> Targeted Enzymes

<130> GC713

<140> US 10/022,073

<141> 2001-12-13

<150> US 60/279,609

<151> 2001-03-28

<150> US 60/255,774

<151> 2000-12-14

<160> 43

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 361

<212> PRT

<213> Enterobacter cloacae

<400> 1

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Thr	Pro	Leu	Met	Lys	Ala	Gln	Ser	Val	Pro	Gly	Met	Ala	Val	Ala	Val
		20						25					30		
Ile	Tyr	Gln	Gly	Lys	Pro	His	Tyr	Thr	Phe	Gly	Lys	Ala	Asp	Ile	
	35					40					45				
Ala	Ala	Asn	Lys	Pro	Val	Thr	Pro	Gln	Thr	Leu	Phe	Glu	Leu	Gly	Ser
	50					55				60					
Ile	Ser	Lys	Thr	Phe	Thr	Gly	Val	Leu	Gly	Gly	Asp	Ala	Ile	Ala	Arg
65					70				75					80	
Gly	Glu	Ile	Ser	Leu	Asp	Asp	Ala	Val	Thr	Arg	Tyr	Trp	Pro	Gln	Leu
			85					90					95		
Thr	Gly	Lys	Gln	Trp	Gln	Gly	Ile	Arg	Met	Leu	Asp	Leu	Ala	Thr	Tyr
			100					105					110		
Thr	Ala	Gly	Gly	Leu	Pro	Leu	Gln	Val	Pro	Asp	Glu	Val	Thr	Asp	Asn
		115					120					125			
Ala	Ser	Leu	Leu	Arg	Phe	Tyr	Gln	Asn	Trp	Gln	Pro	Gln	Trp	Lys	Pro
	130					135					140				
Gly	Thr	Thr	Arg	Leu	Tyr	Ala	Asn	Ala	Ser	Ile	Leu	Gly	Phe	Gly	Ala
145					150					155					160
Leu	Ala	Val	Lys	Pro	Ser	Gly	Met	Pro	Tyr	Glu	Gln	Ala	Met	Thr	Thr
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Arg	Val	Leu	Lys	Pro	Leu	Lys	Leu	Asp	His	Thr	Trp	Ile	Asn	Val	Pro

<220>
 <223> primer

 <400> 5
 aagctttgga tgtccgggcc cgaattcgtg tgaaattggt atccgctcac 50

 <210> 6
 <211> 88
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <221> misc_feature
 <222> (1)...(88)
 <223> n = A,T,C or G

 <400> 6
 ttccaggcat ggcggtggcc gttatttatn nsnsnsnsnn snsnsnsns nnsaaaccgc 60
 actattacac atttggaag gccgacat 88

 <210> 7
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 <221> misc_feature
 <222> (1)...(88)
 <223> n = A,T,C or G

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 cgcgatgtcg gccttgccaa atgtgtaata gtgcggttts nnsnsnsnsn nsnsnsnsnn 60
 snnataaata acggccaccg ccatgcct 88

 <210> 8
 <211> 74
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 8
 ctaggtcttc tactagttaa attgtcttag tcgtagctcc atctgcagtt gaagactctc 60
 tactggcggg ttg 74

 <210> 9
 <211> 77
 <212> DNA
 <213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> (1)...(77)

<223> n = A,T,C or G

<400> 9

cgcttgcgcc gttgcccgtg gcagaagtga atnnsnnsnn snnsnnsnns nnsnnstcct
gggtccataa aactggc

60

77

<210> 10

<211> 77

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<213> Artificial Sequence

<220>

<223> primer

<221> misc_feature

<222> (1)...(77)

<223> n = A,T,C or G

<400> 10

tagagccagt tttatggacc caggasnnsn nsnnnsnnsnn snnsnnsnna ttcacttctg
ccacgggcaa cggcgca

60

77

<210> 11

<211> 95

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<213> Artificial Sequence

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<221> misc_feature

<222> (1)...(95)

<223> n = A,T,C or G

<400> 11

cgcttgcgcc gttgcccgtg gcagaagtga atnnsnnsnn snnsnnsnns nnsnnnsnns
nsnnnsnnsnn snnstcctgg gtccataaaa ctggc

60

95

<210> 12

<211> 95

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<213> Artificial Sequence

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<223> primer

<221> misc_feature

<222> (1)...(95)

<223> n = A,T,C or G

<400> 12

tagagccagt tttatggacc caggasnnsn nsnnnsnnsnn snnsnnsnns nnsnnnsnns
nsnnnsnatt cacttctgcc acgggcaacg gcgca

60

95

<210> 13
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 <221> misc_feature
 <222> (1)...(95)
 <223> n = A,T,C or G

 <400> 13
 cgcttgccgc gttgcccggtg gcagaagtga atsngdhcsn gdhcsngdhc aagdhcsngd 60
 hcsngdhcsn gdhctcctgg gtccataaaa ctggc 95

 <210> 14
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 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 14
 attcacttct gccacgggca acggcgca 28

 <210> 15
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 15
 tagagccagt tttatggacc cagga 25

 <210> 16
 <211> 84
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 16
 tggcccgcg cgcctaattg tcttaggcgg atgcatgtg cagtactaga agacggcgta 60
 tcgggtcaat gtatcagggt ctgc 84

 <210> 17
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>

<223> primer

<400> 17
agacaattag cggccgcggg ccatgt

26

<210> 18
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 18
cagccgagac cctgatacat tgacccga

28

<210> 19
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> (1)...(68)
<223> n = A,T,C or G

<400> 19
tggccccgga gnnnsnnsnns nnsnnsnsc ttaagcaggg catcgcgctg gcgcagtcgc
gctactgg

60
68

<210> 20
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature
<222> (1)...(75)
<223> n = A,T,C or G

<400> 20
tacgccagta gcgcgactgc gccagcgcca tgccctgctt aagsnnsnns nnsnnsnnsn
nctccggggc catgt

60
75

<210> 21
<211> 80
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> misc_feature

<222> (1)...(80)
 <223> n = A,T,C or G

<400> 21
 tggccccgga gnnnsnnsnns nnsnnsnnsn nsnnnsnnsn scttaagcag ggcacgcgc 60
 tggcgagtc gcgtactgg 80

<210> 22
 <211> 87
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<221> misc_feature
 <222> (1)...(87)
 <223> n = A,T,C or G

<400> 22
 tacgccagta gcgcgactgc gccagcgca tgccctgctt aagsnnsnns nnsnnsnnsn 60
 nsnnnsnnsn snnctccggg gccatgt 87

<210> 23
 <211> 76
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 23
 gtgttcagg tcttctacta gtttaattgt cttaggcgga tgccatgtgc tcgtagctcc 60
 atctgcagtt gaagac 76

<210> 24
 <211> 88
 <212> DNA
 <213> Artificial Sequence

<220>
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<221> misc_feature
 <222> (1)...(88)
 <223> n = A,T,C or G

<400> 24
 ttccaggcat ggcggtggcc gttattnatn nsnnnsnnsn snnnsnnsnns nnsaaaccgc 60
 actattacac atttggaag gccgacat 88

<210> 25
 <211> 74
 <212> DNA
 <213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 25
ctaggtcttc tactagttta attgtcttag tcgtagctcc atctgcagtt gaagactctc 60
tactggcggg ttg 74

<210> 26

<211> 95

<212> DNA

<213> Artificial Sequence

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<221> misc_feature

<222> (1)...(95)

<223> n = A,T,C or G

<400> 26
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nnsnnsnnsn snnstcctgg gtccataaaa ctggc 95

<210> 27

<211> 28

<212> DNA

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<220>

<223> synthetic oligonucleotide

<400> 27
attcacttct gccacgggca acggcgca 28

<210> 28

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic oligonucleotide

<400> 28
tagagccagt tttatggacc cagga 25

<210> 29

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic library sequence

<221> VARIANT

<222> (1)...(36)

<223> Xaa = Any Amino Acid

<400> 29

Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Pro Pro Ala
 1 5 10 15
 Pro Pro Val Lys Ala Ser Trp Val His Lys Thr Gly Ser Thr Gly Gly
 20 25 30
 Phe Gly Ser Xaa
 35

<210> 30
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
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<221> VARIANT
 <222> (1)...(42)
 <223> Xaa = Any Amino Acid

<400> 30
 Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Glu Tyr Asp
 1 5 10 15
 Arg Arg Leu Asp Ala Ser Leu Cys Phe Val Lys Ser Trp Val His Lys
 20 25 30
 Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
 35 40

<210> 31
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic library sequence

<221> VARIANT
 <222> (1)...(42)
 <223> Xaa = Any Amino Acid

<400> 31
 Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Glu Gln Gln
 1 5 10 15
 Glu Glu Glu Ala Gly Thr Ser Lys Val Gly Pro Ser Trp Val His Lys
 20 25 30
 Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
 35 40

<210> 32
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic library sequence

<221> VARIANT
 <222> (1)...(42)

<223> Xaa = Any Amino Acid

<400> 32

Lys	Val	Ala	Leu	Ala	Pro	Leu	Pro	Val	Ala	Glu	Val	Asn	Gln	Gly	Thr
1				5					10					15	
Glu	Leu	Arg	Phe	Lys	Leu	Lys	Leu	Lys	Arg	Glu	Ser	Trp	Val	His	Lys
		20						25					30		
Thr	Gly	Ser	Thr	Gly	Gly	Phe	Gly	Ser	Xaa						
		35					40								

<210> 33

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic library sequence

<221> VARIANT

<222> (1)...(42)

<223> Xaa = Any Amino Acid

<400> 33

Lys	Val	Ala	Leu	Ala	Pro	Leu	Pro	Val	Ala	Glu	Val	Asn	Arg	Gly	Leu
1				5					10					15	
Pro	Thr	Trp	Thr	Ala	Leu	Val	Glu	Lys	Pro	Gly	Ser	Trp	Val	His	Lys
			20					25					30		
Thr	Gly	Ser	Thr	Gly	Gly	Phe	Gly	Ser	Xaa						
		35					40								

<210> 34

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic library sequence

<221> VARIANT

<222> (1)...(42)

<223> Xaa = Any Amino Acid

<400> 34

Lys	Val	Ala	Leu	Ala	Pro	Leu	Pro	Val	Ala	Glu	Val	Asn	Ala	Ile	Arg
1				5					10					15	
Val	Asp	Leu	Gly	Pro	Ser	Ser	Arg	Ser	Arg	Arg	Ser	Trp	Val	His	Lys
			20					25					30		
Thr	Gly	Ser	Thr	Gly	Gly	Phe	Gly	Ser	Xaa						
		35					40								

<210> 35

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic library sequence

<221> VARIANT
 <222> (1)...(42)
 <223> Xaa = Any Amino Acid

<400> 35
 Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Ala Thr Asn
 1 5 10 15
 Thr Thr Ser Asp Glu Val Val Gly Thr Gln Lys Ser Trp Val His Lys
 20 25 30
 Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
 35 40

<210> 36
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic library sequence

<221> VARIANT
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 <223> Xaa = Any Amino Acid

<400> 36
 Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Tyr Thr Ser
 1 5 10 15
 Val Gly Ala Gly Trp Arg Ala Gln Ala Val Gly Ser Trp Val His Lys
 20 25 30
 Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
 35 40

<210> 37
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
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<221> VARIANT
 <222> (1)...(42)
 <223> Xaa = Any Amino Acid

<400> 37
 Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Gly His Arg
 1 5 10 15
 Val Val Pro Ser Tyr Leu Val Arg His Asp Ser Ser Trp Val His Lys
 20 25 30
 Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
 35 40

<210> 38
 <211> 42
 <212> PRT
 <213> Artificial Sequence

<220>
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<221> VARIANT
<222> (1)...(42)
<223> Xaa = Any Amino Acid

<400> 38
Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Gln Thr Leu
1 5 10 15
Asn Thr Ser Thr Ile Met Pro Arg Ser Pro His Ser Trp Val His Lys
20 25 30
Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
35 40

<210> 39
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic library sequence

<221> VARIANT
<222> (1)...(42)
<223> Xaa = Any Amino Acid

<400> 39
Lys Val Ala Leu Ala Pro Leu Pro Val Ala Glu Val Asn Gly Gly Arg
1 5 10 15
Lys Asp Gly Trp Pro Arg Gln Gly Lys Glu Gly Ser Trp Val His Lys
20 25 30
Thr Gly Ser Thr Gly Gly Phe Gly Ser Xaa
35 40

<210> 40
<211> 14
<212> PRT
<213> Artificial Sequence

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<221> VARIANT
<222> (1)...(14)
<223> Xaa = Any Amino Acid

<400> 40
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1 5 10

<210> 41
<211> 95
<212> DNA
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 <221> misc_feature
 <222> (1)...(95)
 <223> n = A,T,C or G

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 hcsngdhcsn gdhctcctgg gtccataaaa ctggc 95

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 <212> DNA
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 <400> 42
 attcacttct gccacgggca acggcgca 28

 <210> 43
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic oligonucleotide

 <400> 43
 tagagccagt tttatggacc cagga 25